DOCUMENT RESUME

ED 232 343 EC 152 623

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TITLE [Data Based Gymnasium Model.]
INSTITUTION Teaching Research Infant and Child Center, Monmouth, Oreg.
PUB DATE Mar 83
NOTE 7p.
PUB TYPE Reports - Descriptive (141) -- Collected Works - Serials (022)
JOURNAL CIT Teaching Research; v11 n3 Mar 1983

EDRS PRICE MF01/PC01 Plus Postage.
DESCRIPTORS *Adapted Physical Education; Educational Objectives; Elementary Secondary Education; *Games; Group Instruction; Higher Education; Individual Instruction; Individualized Instruction; *Inservice Education; Leisure Time; *Movement Education; *Physical Activities; Recreational Activities; *Severe Disabilities; Skill Development; Training Objectives
IDENTIFIERS *Data Based Gymnasium Model

ABSTRACT

The Data Based Gymnasium Model, a systematic approach to physical education for the severely handicapped, is described in this newsletter issue. The model was developed through a cooperative effort between Oregon State University and the Teaching Research Infant and Child Center. The "Game, Exercise, and Leisure Sport Curriculum for the Severely Handicapped" is divided into four major domains: movement concepts; basic game skills, physical fitness, and leisure movement. Skills, or programs, are task analyzed and systematically presented in teaching steps commensurate with the learning needs of the severely handicapped. The Data Based Gymnasium Model incorporates the basic component framework of the Teaching Research Data Based Classroom Model with adaptations for the needs of the physical education setting. The model employs a behavioral approach to instruction and conducts learning programs in both individual one-to-one settings and group settings. The staff training component includes direct inservice training and followup services. (SEW)

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PREPARED BY THE STAFF OF THE SPECIAL EDUCATION DEPARTMENT

Teaching Research, Monmouth, Oregon 97361 **Vol. XI, No. 3, March 1983**

This is the twenty-first of a series of newsletter editions which describe the activities of the Teaching Research Infant and Child Center. The Teaching Research Infant and Child Center consists of:

- Parent Training Clinic: Bill Moore
- Prescriptive Program: Gail Rogers
- Group Home for Severely Handicapped: Dave Templeman
- Director of Classroom Services: Jane Toews
- Integrated Preschool Program: Sue Smiley and Kim Udell
- Elementary Classroom for Severely Handicapped, located in Monmouth-Independence School District: Barbara Korbe, Marianne Houde
- Secondary Classroom for Severely Handicapped, located in Monmouth-Independence School District: Carole Joyner, Sheilah Muthersbaugh, Kirk Hendrickson
- Secondary Classroom for Handicapped Youth In Trouble, located in Salem School District: Chris Hadden, Kevin Zagyva
- Group Home for Handicapped Youth In Trouble: Debbie Kraus
- Training Staff: Torry Piazza Templeman, Carol Bunse, Tina Wilson, Joyce Petersen, Valerie Miller, Bruce Dalke, Sue Garner.

This issue of the newsletter describes the Data Based Gymnasium Model, a systematic approach to physical education for the severely handicapped. The model was developed through a cooperative effort between Oregon State University and Teaching Research. This issue of the newsletter was prepared by Mr. Jim Morehouse, Dr. John Dunn and Mr. Bruce Dalke.

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Introduction

Educators have long recognized that the motor development needs of the severely handicapped require specially designed physical activity programs. Unfortunately, little information has been presented to assist teachers in responding to the unique behavior and motor patterns of students with severe mental, emotional, and sensory impairments. The lack of appropriate educational programs was clearly emphasized with the passage of the Education for All Handicapped Children Act of 1975, Public Law 94-142. This law emphasizes that special education programs, including physical education experiences, must be available for all handicapped children, including the severely handicapped.

Oregon State University's Department of Physical Education in cooperation with the Special Education Department of Teaching Research has developed a data based physical education program for the severely handicapped. This program is described in A Data Based Gymnasium: A Systematic Approach to Physical Education for the Handicapped (Dunn, J.M., Morehouse, J.W., Anderson, R.B., Fredericks, H.D., Baldwin, V.L., Blair, F.L., & Moore, W.G., 1979). Through federal funds supplied by the United States Office of Special Education, a special curriculum and instructional process have been developed to teach physical education to the severely handicapped. A unique inservice training program has also been developed to assist teachers to implement the data based system within their own school system (Dunn, 1980).

Since 1980, Oregon State University and Teaching Research have been training physical educators and special educators to use the Data Based Gymnasium Model. Within this article, a description of the model, an explanation of the staff training procedures utilized and the results of the training project will be presented.

Curriculum

In the area of physical education there are very few curricula which are specifically designed for the severely handicapped (Geddes, 1974). Those which have been reported are either geared too high or are entirely therapeutic in nature. During the summer of 1978 a curriculum entitled Game, Exercise, and Leisure Sport for the Severely Handicapped (Dunn, J.M., Morehouse, J.W., & Dalke, B., 1979) was developed and field tested in the elementary and secondary classrooms operated by Teaching Research in Monmouth, Oregon. The intent of this curriculum is to provide a bridge between therapeutically oriented motor programs and the more advanced physical education experiences which include highly organized game, sports, and physical fitness skills. The ultimate goal is to equip severely handicapped students with essential prerequisite skills to enable them to use the skills in more normal settings. The OSU/Teaching Research Curriculum is systematic, data based, and consistent with the definition of physical education in Public Law 94-142.

The Game, Exercise, and Leisure Sport Curriculum for the Severely Handicapped is divided into four major domain sections.

Movement Concepts which deals with movement through space in one's immediate personal environment to movement skills in more complex environments.

Game Skills, Basic, which addresses skills found in many of our popular elementary games.

Physical Fitness, skills essential for survival in our modern society.

Leisure Movement, focuses on some popular lifetime liesure skills.

Each major domain area is sub-divided into more specific areas of need and each sub-domain includes a number of programs or skills.

Domain: Movement Concepts
Sub-Domain: Personal Space
Skill: Move Body Sideways

Skills, or programs, are task analyzed and systematically presented in teaching steps commensurate with the learning needs of the severely handicapped (see Figure 1).

This curriculum is designed to be used in a program where individual objectives are designed for each student. It must be emphasized, however, that no curriculum can provide all the needed sequences and task analyses for any particular student. The responsibility for altering the sequences to fit the student's needs is the responsibility of the teacher. It is felt, however, that given this curriculum and the skills to make the alterations as necessary, that the teacher can provide appropriate physical activity experiences for handicapped students.

Overview of the Instructional Model

The design of the OSU/TR Physical Education Instructional Model is consistent with the procedure employed successfully by Teaching Research for a number of years and described in A Data Based Classroom for the Moderately and Severely Handicapped (Staff of Teaching Research Infant and Child Center, 1982). The concepts which form the foundation of the Model

LEISURE MOVEMENT

E. Go Down a Slide

Terminal Objective: The student will slide down the slide.

Prerequisite Skills: Climb Stairs.

Phase I The student will sit on the end of the slide and absorb the landing as he gets off.

Phase II The student will climb the ladder to the top and climb back down.

Phase III The student will climb the ladder, sit at the top of the slide, and follow the aide down the slide who reduces the sliding speed.

Phase IV The student will climb the ladder, sit in front of the aide, and they will slide down together.

Phase V The student will climb the ladder, sit at the top, and put his soles on the slide's sides to slow down the descent.

Phase VI The student will slide down the slide.

Figure 1

include the following:

1. Every student, regardless of handicapping condition, can learn. If a student is not learning, the fault lies not with the student but with the educational setting. The student will learn at his/her maximum rate or potential if the teacher has identified and utilized the correct combination of environmental factors. If the student is not learning, the teacher must look at changing the cue, consequence, and/or the task analysis.

2. Handicapped students learn in accordance with the same learning principles as normal students, only usually slower. Because handicapped students learn more slowly than a normal student, they require more extensive and intensive 1:1 instruction to compensate for the slower learning rates.

3. There is no way of determining the extent to which a student will progress. Therefore, no ceiling is placed on the curriculum; the teacher must be prepared to take the student as far and as fast as one can go.

4. Because the range of individual abilities among a handicapped population is usually greater than the range of abilities among a "normal" population, the physical education teacher of the severely handicapped must conduct individualized programs.

5. Because of the wide range of individual differences in the severely handicapped population and oftentimes their unmanageability due to previous ineffective training, effective instruction can oftentimes only be achieved in a one-to-one relationship. Therefore, the utilization of para-professionals to provide individualized instruction in the classroom is considered mandatory.

6. No students are refused admittance into the gymnasium because they are non-ambulatory.

7. Physical education is an integral component of the educational curriculum for severely handicapped students. Instructional programs should be sequenced, task analyzed, and data based so that performance changes in physical education skills can be determined.

The Data Based Gymnasium Model has incorporated the basic component framework of the Teaching Research Data Based Classroom Model making adaptations where needed to meet the unique needs of the physical education setting. The model employs a behavioral approach to instruction and conducts learning programs in both individual 1:1 settings and group settings.

Individual 1:1 Instruction

Severely handicapped students frequently require an instructional setting of one teacher to one student. Insufficient motor and physical fitness levels necessitate an environment in which the severely handicapped student can receive intense instruction to offset their movement deficiencies. Many skills identified in the Game, Exercise, and Leisure Sport Curriculum are designed to be taught as individual 1:1 programs. Some of these skills are complete and stand by themselves, e.g., bike riding, while others are components of more complex games or group sport activities. The latter, however, often must be taught in the individual setting first.

Both 1:1 programs and group programs have certain essential elements which are critical to the instructional model. They include:

- Assessment of the student's skills in relation to the curriculum
- Pinpointing or precisely describing the skill to be taught
- Consistent and prescribed use of cues and consequences
- Regular collection and analysis of data to adjust programs based on the progress shown.

The Data Based Gymnasium Model successfully uses paraprofessionals and volunteers to conduct 1:1 programs in the physical education setting. To provide consistency for the student from trainer to trainer all of the essential information necessary to conduct an individual program is collected and kept on a clipboard. This clipboard becomes a communication/management tool of the teacher and the aides or volunteers. On the clipboard each program includes: 1) a program cover sheet which delineates the cue, consequences, materials, setting, and criteria for success; 2) the task analysis of the skill to be taught; and 3) a data sheet which is used to record the results of each teaching trial conducted. In addition, each clipboard provides the programmer with essential information about the student's reinforcement preferences, levels of language, and any program hindering behavior problems which may be present.

Small Group Activities

As the basic foundational skills are gained the severely handicapped student should be provided the opportunity to generalize the skills learned to instructional situations involving larger groups of students. When several students share equipment, take turns, and receive group directions, new opportunities are created to allow the severely handicapped individual to respond to experiences similar to those found in many physical education and recreation experiences.

To facilitate this movement from a 1:1 setting to two or more students, a group process hierarchy has been established. Five stages have been identified which the students may experience as their skill level increases and as their ability to socialize improves. The following briefly explains each stage:

STAGE I - (Individual) The basic intent of this program is to insure that students can learn in a systematic way given that appropriate cues and consequating procedures are used.

STAGE II - (Advanced Individual) This stage permits the trainee the opportunity to utilize the skills learned in Stage I with more than one student at a time. Again the attempt is to provide systematic instruction with the teacher conducting programs alternating from student to student. This Stage allows for early peer interaction and permits the trainee to sharpen his/her ability to run programs while managing the behavior of other children.

STAGE III - (Transition) the ultimate goal of this Stage is to advance students from the tightly controlled cubicle setting with the teacher providing direct cues to a non-directed cue procedure using defined stations within a small room or gymnasium environment.

STAGE IV - (Skill x Peer Interaction) Stage IV is an advancement over Stage III because at this level students interact with one another through the medium of various skills, i.e., students practice skills together. One student for instance may practice throwing while another student practices catching. Another example would be students playing the game of quoits together.

STAGE V - (Basic Games) In this Stage, children are provided an opportunity to play basic games using two sequenced skills, e.g. hit and run to first. The fielder in this example would field and then throw to first. Many elementary games could be introduced at this level. The primary point to remember is that no more than two skills should be sequenced.

STAGE VI - (Intermediate Game) This Stage is an advancement over Stage V because students are now asked to sequence three skills. A student for example might be asked to hit a ball, run to first, and then return to home plate. Another example might be to catch a pass, dribble the basketball to the basket and then shoot the ball. Obviously, sequencing three skills requires not only an advanced skill level but high receptive and expressive abilities. After all, physical education is a learning experience.

Overview of the Staff Training Model

The staff training component of the project has two major activities, direct inservice training, and follow-up services to ensure that the skills learned in training are utilized. The first aspect of the project is a week of inservice training at Teaching Research's Infant and Child Center. Trainees work with children in the Central School District Campus Elementary School, located on the Western Oregon State College

campus, and Talmadge Junior High School in Independence, Oregon.

There are traditionally seven one-week training sessions scheduled per year. Two sessions are held during the summer and the remainder are held once a month from September through January. The trainees are scheduled from 8:30 to 4:30 p.m. Monday through Thursday with an early dismissal on Friday afternoon.

A maximum of five trainees are selected for each session. The small number is vital to the training design since the trainer/trainee ratio is kept at 1:1. This ensures that trainees will meet the specified competency levels on all objectives. Priority is given to those applicants who are teaching moderately and severely handicapped children either as a classroom teacher, resource room teacher, special physical educator, or physical educator.

Specific objectives of the inservice training experience include:

1. Demonstrate knowledge of the OSU Data Based System by answering questions over materials and activities presented.

2. Administer a placement and baseline test to establish appropriate physical education experiences for severely handicapped students.

3. Conduct prescriptive physical education programs.

4. Modify and update prescriptive physical education programs based on data collected during teaching session.

5. Demonstrate the ability to conduct physical education programs with small groups of severely handicapped students.

6. Demonstrate knowledge of behavior management and behavioral terminology.

7. Demonstrate ability to use a volunteer observation form to provide feedback to other trainees.

8. Implement the OSU Data Based System at their own school utilizing the information and skills gained during the one-week training.

The morning sessions during training are spent in direct contact with the students in both the elementary and secondary classrooms. The afternoon sessions include seminars on learning theory, classroom management, and assessment. The progress of each trainee is monitored daily to determine which areas require additional practical and theoretical information.

On-site follow-up is the second major component of the inservice training activities. A member of the project staff visits the trainee's school one month and four months after the training. At this time the project staff checks to ensure that the skills learned during training are maintained at criterion. Further instructional assistance and helpful suggestions for implementing the model are provided. The children taught by the trainees are observed to determine the skills they have learned. The clipboard for each student is checked to ensure proper management systems are maintained. Goals and objectives are then reviewed with the trainee for the next follow-up which occurs four months later.

During the second follow-up a brief review of the trainee's instructional skills and their ability to utilize the model are checked. One of the most important aspects of this visitation is to determine how far the students have progressed in motor skill development. An additional instructional component observed during the second visit is the trainee's ability to conduct group programs. The project staff feels the group process may well be the most important outgrowth of the project since a systematized process in moving a severely handicapped student from one to one instruction to a group setting in physical education is a major need in the field of special physical education.

The project staff feels the follow-up is an essential component of the project. It communicates to the trainee that the staff is committed to the process through the most difficult times - implementation of the model at the trainee's respective school. Continued use of the model depends heavily upon the degree of success the trainee realizes during the first four months of implementing the program. The follow-up provides an opportunity for the trainee to obtain support, encouragement, and assistance from the training staff.

Staff Training Results

During the project period between July, 1980 and June, 1982, 60 individuals were trained. The trainees represent many areas of responsibility, i.e., physical educators teaching in the kindergarten through college level, special educators from K-12, special physical educators, administrators, and resource room specialists.

During the first year, 78 percent of the trainees met criterion on all goals and completed the requirements of the project. During the second year, 98 percent of the trainees met the requirements of the project and maintained criterion on all of the respective components of the project. Third year data shows 92 percent of trainees met criterion on all components.

One of the major concerns in implementing the training project was the maintenance of the quality of training as demonstrated by the skills learned by the trainees. The data suggest that the quality of the training improved since more trainees met the competencies at a higher percentage during the more recent training sessions. There also appears to be a higher percentage maintaining their skills at criterion after the second follow-up.

Many factors can influence implementation of 1:1 programs and maintenance of the skills learned during training. There are 15 indicators which fall into seven categories directly related to the skills learned during training which can be monitored.

1. Conduct Prescriptive Programs. Observations of trainee skill in 1:1 program delivery including appropriate delivery of cues, consequences, and following program sequence with data collection.

2. Manage Group. Observations of trainee managing a group of students while rotating attention to all students as well as cue delivery, consequencing behavior, and keeping data.

3. Updating Programs. The trainee updates the programs for the next day using the rules learned during training. The staff determines whether daily program data have been appropriately analyzed and appropriate program continuation decisions have been made.

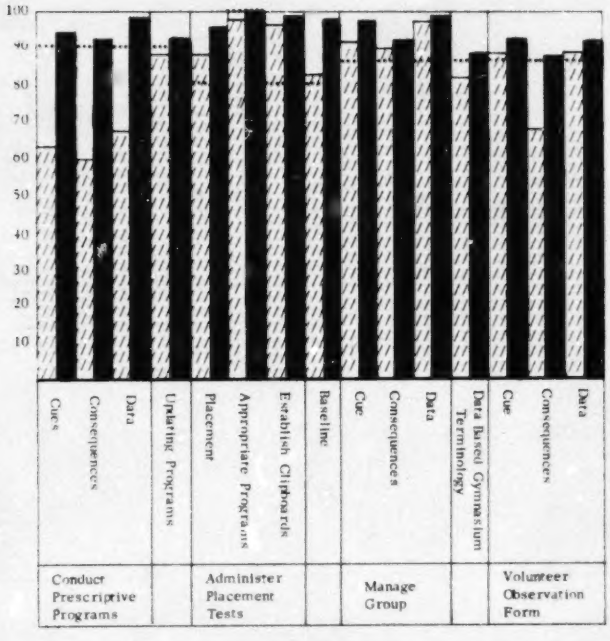
4. Administer Placement Tests. Determine whether the trainee uses the proper format in assessing the student and that appropriate programs are established. The clipboard must contain all the essential items once programs are established.

5. Volunteer Observation Forms. Observational agreement between the trainer and trainee on an aide or volunteer conducting an individual program.

6. Baseline. Observe the trainee conducting a baseline.

7. Data Based Gymnasium Terminology. Determine whether there is an understanding of all the main terms.

Utilizing an instrument designed to evaluate trainee performance in relation to the seven indicators, the project staff conducted two follow-up sessions to determine the level of implementation and maintenance. Figure 2 displays the average results of all trainees for each of the seven indicators. Data were collected on each trainee on all indicators. Analysis of the data collected on these seven indicators suggests a high rate of improvement from the pretest given during the training week to the final observation during the final follow-up visit.



These percents represent the average of all trainee's scores achieved during pretest of training week (first column in each category) and the scores received during the second follow-up (second column).

/// Pretest Before Training

Posttest

···· Minimum Competency Level

Figure 2

Impact of Training on Students

A question often asked is "Does this training have any impact on severely handicapped children?" The data compiled through June, 1982 supports the premise that the training program has benefitted children (see Figure 3).

	1979-1980	1980-1981	1981-1982
Number of trainees completing project	13	26	21
Students served	40	167	99
Programs developed	103	631	433
Program phases completed	275	1369	1846
Volunteers trained by trainee	0	51	44

Figure 3

The data generated leads one to the conclusion that the training of teachers in the Data Based Gymnasium impacts students very favorably.

Future activities will be directed toward refining the group process used in the Data Based Gymnasium system. Efforts will also be directed toward assisting other States develop similar training opportunities and experiences.

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RECOMMENDED READING

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